

Atty's 23251

Pat. App. 10/528,378

CLAIM AMENDMENTS

1-20. (canceled)

21. (currently amended) (previously presented) A
printing process for obtaining patterns of nanometer and micrometer
dimensions on a substrate, comprising the steps of sequentially:
forming a solution or suspension of a n-evaporable
volatile liquid and a printing material,
applying a layer of the solution or suspension to said
substrate,
positioning, without applying pressure, of a stamp
provided with relief patterns at a distance of 0 nm to 500 μ m from
the substrate with the relief patterns in contact with the layer of
the solution or suspension,
evaporating only the evaporable volatile liquid from said
solution or suspension from between the substrate and the stamp
without evaporating the printing material so as to draw the
suspension or solution by capillarity to the relief patterns and
deposit the printing material on the substrate in accordance with
the relief patterns of the stamp, and
thereafter separating the stamp from the substrate and
leaving the printing material on the substrate.

22. (previously presented) The process according to claim
21, wherein said printing material is chosen from the group
consisting of soluble polymers or precursors of polymers.

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1 23. (previously presented) The process according to claim
2 22, wherein said printing material is chosen from the group
3 consisting of polyaniline, polyphenylene vinylene,
4 poly(3-alkyl-thienyl) and mixtures thereof.

1 24. (previously presented) The process according to claim
2 21, wherein said printing material is chosen from the group
3 consisting of tris-(quinoline) aluminum, coordination compounds,
4 metallic clusters, rotaxanes, polythiophenes, phthalocyanines, and
5 mixtures thereof.

1 25. (previously presented) The process according to claim
2 21, wherein said printing material is chosen from the group
3 consisting of colloidal substances and nanoparticles.

1 26. (previously presented) The process according to claim
2 25, wherein said printing material is colloidal Au or Ag.

1 27. (previously presented) The process according to claim
2 21, wherein said printing material and/or said solution or
3 suspension is chemically reactive with a surface of said substrate
4 and can produce corrosion, chemisorption, grafting or polymerization
5 of the surface.

1 28. (previously presented) The process according to claim
2 21, wherein said distance is changed during imprinting.

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1 29. (previously presented) The process according to claim
2 21, wherein said stamp has multiple protrusions of arbitrary shape
3 and dimensions.

1 30. (previously presented) The process according to claim
2 21, wherein said stamp is a hard stamp, made of chromium, steel,
3 silicon oxide, or a polymer like polymethyl methacrylate, or
4 polycarbonate.

1 31. (currently amended) The process according to claim
2 21, wherein said stamp is a stamp made of elastomeric printing
3 material.

1 32. (previously presented) The process according to claim
2 21, wherein said stamp is formed by a thin film of material that
3 floats on said solution.

1 33. (currently amended) The process according to claim
2 21, wherein the evaporable volatile liquid is evaporated from the
3 suspension or solution at a temperature between -70 and 300 degrees
4 Celsius.

1 34. (previously presented) The process according to claim
2 26, wherein said substrate has a surface area that is orders of
3 magnitude larger than the dimensions of the relief patterns of the
4 stamp.

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1 35. (previously presented) The process according to claim
2 21, wherein said stamp is arranged in an inclined configuration with
3 respect to a surface of said substrate, thus producing on the
4 substrate patterns with a spatially variable thickness.

1 36. (previously presented) The process according to claim
2 21, wherein said solution contains multiple printing materials in
3 the form of solutes, said solutes being suitable to precipitate
4 selectively in different times, thus generating controlled
5 nonuniformities of composition in the resulting patterns.

1 37. (previously presented) The process according to claim
2 21, wherein said solution contains imprinting materials in amounts
3 suitable to react in reaction volumes on the order of magnitude of
4 picoliters.

38 - 40. (canceled).

1 41. (previously presented) The process defined in claim
2 31 wherein the printing material is polydimethyl siloxane.